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JACK-PINE BUDWORM EARLY INSTAR LARVAL SURVEY ON THE HIAWATHA N.F.

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INTRODUCTION

The jack-pine budworm is a perenial pest of jack and red pine in the Lake States. The damage from defoliation results in growth reduction, top-kill, or tree mortality, depending on the severity of defoliation.

Predictions of budworm outbreaks and defoliation have been inaccurate To improve the predictions, annual evaluation surveys were inaugurated to determine the following:

1. To determine the degree of budworm population fluctuations during pre-outbreak periods.

2. To determine the effect of previous pine defoliation on the budworm populations.

3. To determine how much defoliation occurs from a given larval population.

This report covers the results of early larval collections made in June, 1969, and compares the populations with egg survey results from the previous fall.

METHODS

The detailed sampling plans are described in the original evaluation plan (Millers, 1968). In general, it follows the techniques described by Foltz et al., 1968. Briefly, 4 branches are sampled from each of 10 trees (2 from mid-crown and 2 from lower crown) in a cluster at preselected locations. During egg survey in fall, 36 inch long branches were examined. For larval surveys, 18 inch long branches are sampled. Summer Students, FPC, and a crew at the Toumey Nursery, Watersmeet, Michigan, were responsible for branch examination. The results are expressed as number of budworms (or eggs) per 100 shoots (current growth tips) per plot. More than 40 budworms per 100 tips can be expected tocause heavy defoliation.

RESULTS

Table 1 shows the present budworm populations and compares them with the egg populations in the fall. The map shows cluster locations on the Forest.

In general, budworm populations have declined to low levels. Only in the Rapid River area (Cluster 102) visible defoliation is likely to occur.

The budworm populations on red pine declined in the Raco area (Cluster 123). However, near Munising more budworms are present on red pine (Cluster 120) than adjoining jack pine (Cluster 121), although only light defoliation is expected.

TABLE I. JACK-PINE BUDWORM POPULATIONS ON THE HIAWATHA NATIONAL FOREST

	CLUSTER No.	FALL, 1968 Eggs/100 tips	SPRING, 1969 Larvae/100 tips
East Unit	101	957	4.45
	102	178	24.03
	103	341	6.85
	104	890	2.97
	112	168	4.93
	113	292	4.12
	105	334	6.63
	121	403	1.02
West Unit	110	86	2.73
	111	17	1.15
	122	45	0.40
	106	6	0
	107	36	0.63
	108	31	0.17
	109	76	4.04

REFERENCES

FOLTZ, J. L., F. B. Knight, D. C. Allen, A. J. Mattson, Jr. 1968. A technique for sampling populations of the jack-pine budworm. Forest Service 14(3): 277-281

MILLERS, I. 1968. Evaluation plan for jack-pine budworm larval populations on National Forests in the Lake States. USDA, Forest Service, NA S&PF, St. Paul Field Office. 5230. 6 pp.

HIAWATHA NATIONAL FOREST